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## **Assessing the Value of Real-Life Brands in Virtual Worlds**

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**ABSTRACT**

Virtual Worlds are a significant new market environment for brand-building through experiential customer service interactions. Using value theory, this paper aims to assess the experiential brand value of real-life brands that have moved to the Virtual World of Second Life. A key premise is that current brand offerings in Virtual Worlds do not offer consumers adequate experiential value. The results demonstrate both the validity of an axiological approach to examining brand value, and the apparent problems in consumer perceptions of the experiential value of brands within the Virtual World. A key finding is the difficulty in creating emotional brand value in Second Life which has serious implications for the sustainability of current real-life brands in Virtual Worlds. The paper rounds off with conclusions and implications for future research and practice in this very new area.

**Keywords:** Virtual Worlds; brand value; brand experiences; emotion.

## 1. Introduction

In our changing market environment, an increasing number of organizations are centering upon embracing technology-based service designs as a mechanism for enhancing customers' brand experiences [1-3]. Virtual Worlds are one such technology-based servicescape that offers consumers a unique experiential experience [1]. These three-dimensional, computer-generated Virtual Worlds are emerging as a potentially important platform for businesses to communicate with current and prospective customers, and many companies have invested in building a presence in this virtual environment [4].

Virtual Worlds are currently recognized as service platforms for organizations as they offer users (consumers) the opportunity to experientially interact with the environment [5-7]. Through avatars, members of a Virtual World can engage in rich world 'experiences' via a variety of interactions with; other users, the simulated environment and branded products and services [8]. It is this level of connectivity between consumers and organizations within Virtual Worlds that offers brands heightened opportunities to experientially engage their consumers through communication, collaboration and cooperation [9]. This enhanced connectivity in Virtual Worlds fundamentally changes the way organizations can create and sustain value for their customers. Hence, while we can acknowledge that brand promises equate to experiences that customers can expect from the interactions they encounter with a brand [10], little research has explored the dimensions of brand value in Virtual Worlds. That is, how well are brands able to engage with consumers at the sensory, cognitive, emotional and behavioral levels in these virtual platforms?

This research seeks to extend the current field of inquiry which has focused upon understanding how aspects of branding, in technology-based platforms, impacts consumer reactions [11-15]. In moving towards enhanced understanding, we adopt a brand perspective

aimed to evaluate the value of brand experiences within this context. In doing so, we define Virtual Worlds as three-dimensional, computer-generated environments that incorporate aspects similar to our ‘real world’ [4]. In this vein Virtual Worlds are viewed as interactive platforms or “experience worlds” which allow the user (customer) freedom of choice within the environment. Choice to engage in experiences such as, social networking, the buying and selling of digital content, education, entertainment, all of which can be defined as ‘virtual brand experiences’. We postulate that brand experiences in Virtual Worlds, which involve both, internal consumer responses (feelings and cognitions), and behavioral responses evoked by brand-related stimuli [16] are laden with challenges which are inherently different to those in a real-life brand setting. In support of this premise, we identify that organizations who utilize Virtual Worlds are placed in the tenuous position of needing to clearly communicate brand promises to consumers regarding the experience of interacting with them in lieu of direct measures of service/product quality.

Specifically this study aims to investigate how customers perceive experiential brand value of real-life brands that have established a presence in the Virtual World of Second Life. The research objective is to examine whether brand experiences in Virtual Worlds are able to create experiential value for consumers and to do so using an instrument based on Hartman’s [17] axiological theory. Within Hartman’s [17] axiological theory, value is construed as a multi-dimensional construct which measures logical, practical and emotional ways of perceiving reality. As such, this study extends the understanding of sustaining a brand in a virtual environment by investigating brand value perceptions. The structure of the paper is as follows. The following section explores customer experiences in Virtual Worlds as well as the presence and value of brand experiences in Virtual Worlds. This is followed by a section which highlights the hypotheses that this study specifically addresses. The ensuing section summarizes the research method, after which follows the research findings. The article then concludes with a

discussion, conclusions, limitations, and implications for research and practice in this very new area of investigation.

## **2. Literature review**

### *2.1 Virtual Worlds*

Mitham [18] estimates that consumer Virtual Worlds will produce US\$7.29 billion in revenues in 2013. KZero [19] purported that the combined population of registered accounts for Virtual Worlds in quarter four of 2012 was in excess of 2.1 billion, around one-fifth of which were active users; currently there are more than 500 Virtual Worlds, aimed at either varying consumer segments (e.g., Disney Fairies, NFL Rush, McWorld, Virtual MTV, Buildabearville, and Hello Kitty Online), or to more collective markets (Second Life, Multiverse, Active Worlds, There, and Kaneva).

Virtual Worlds can be broadly categorized as either, game-orientated or social-orientated, with the two key delineating factors between both being recognized as, user roles and the set of prescribed constraints applied within the environment. For example, ‘in social-orientated Virtual Worlds such as Second Life, no levels, scores, nor an ‘end’ or ‘game over’ exist.’ ([19] p. 192). Social-orientated Virtual Worlds tend toward mimicry of real life experience, and as such, they have become home to a global marketplace of brands. Researchers have adopted various typologies to assist in classifying the diverse range of Virtual Worlds [5, 8, 20]. Table 1 offers an overview of a cross-section of the largest Virtual Worlds currently in the market, specifically focusing on those that have a population of over 30 million registered users. Second Life is one of the three largest self-determined or open-objective Virtual Worlds, these worlds tend to

augment the users real life, with their online social and business lives [8]. They are open to various population segments and tend to operate using their own tradable currency (for example, the use of Linden Dollars in Second Life).

[Add table 1 about here]

The socially-orientated Virtual World, Second Life has been chosen for this study as it is arguably the best known and one of the broadest Virtual World service platforms [8]. It has grown rapidly from 2 million registered accounts in January 2006 to approximately 33.5 million accounts in quarter one of 2013, with approximately 12,000 new users signing up each week [21]), and revenue of US\$100 million [22]. Users (consumers) of Second Life can engage in, not only entertainment, work, play and social interactions, they can also purchase clothing, furniture, real-estate, boats, cars, and a wide range of other virtual products. The enhanced sophistication of social-orientated Virtual Worlds such as Second Life incorporate features such as, an in-world currency, avatars, ownership permissions, communication vehicles and social networking tools that provide commercial opportunities for brand interactions. At its peak, a plethora of brands adopted a presence in Second Life, offering virtual customers a variety of brand experiences; Second Life, attracted well over 100 real-life brands [23] in sectors such as auto (i.e. Nissan, Toyota, Honda), media (i.e. Wired Magazine, MTV, Sky News), travel (i.e. STA Travel, Starwood Hotels), consumer electronics (i.e. Dell Computers, Microsoft), consumer goods (i.e. L'Oreal, Sony-Ericsson), luxury goods (i.e. Hublot, Armani, Mercedes-Benz), telecommunications (i.e. Vodaphone, Telstra), finance (i.e. ING, AMRO Bank), and professional services (i.e. PA Consulting, H&R Block, IBM) [8, 24-25]. Indeed, Second Life has experienced the greatest number and variety of real-life brands of any Virtual World, which encourages its



selection as the virtual platform for this study.

## *2.2 Brand experiences in Virtual Worlds*

Virtual Worlds appear to provide an extraordinarily diverse range of possible experiential opportunities that can be identified as brand experiences [26-27]. In acknowledging the premise that within Virtual Worlds such as Second Life brands can be construed as vehicles of brand experiences, rather than seeing the brand as a proxy for the real-life situations, then sites and virtual locations therefore refer to a brands' experiential capacity.

Establishing a brand in the Virtual World can provide a number of benefits for a business including, enhanced brand experience through engagement with the Virtual World community. However, to the present time, real-life brands have struggled to establish a presence in the Virtual World, and while brands such as Dell persist, many have failed and have closed their operations in Second Life, such as AOL, Reebok, Adidas, Sears, and American Apparel. Such outcomes are intriguing as these brands are strong and have a global reach. A pioneering study by Barnes and Mattsson [5] developed a brand value scale for use in Second Life and reported that the transference of brand value from real-life to the Virtual World is strongly estimated by extension attitude which in turn, is driven by category and channel extension fit. These constructs seem to mediate the ultimate value of the brand in the virtual environment. This outcome suggests that Virtual Worlds are a very different and complex environment for brand building.

The simulated environment in Virtual World platforms suggests that how brands appear in Second Life will be quite different to real-life and has serious implications for their success within the Virtual World. Thus, a hypothesis that the current brand offerings in the Virtual World

create low-end rather than high-end brand value underpins this research – that is, they fail to create strong brand experiences and value for consumers.

Thus far, there is a paucity of academic research into branding experiences in Virtual Worlds. The choice of launching a brand presence in an entirely new and little understood channel – Virtual Worlds – carries a high level of uncertainty. So while many companies have established a presence in Second Life and other Virtual Worlds, there is little academic research that has explored the extent to which these environments deliver customer value through virtual brand interactions.

### *2.3 Evaluating the value of brand experience in Virtual Worlds*

Brands have been traditionally conceptualized as a name, symbol, term or logo which communicates a message about a marketing entity [28]. Brands engage customers through these mechanisms in order to deliver customer-directed meaning or promises [29]. Hence consumers engage in cognitive processing which allows complex brand attributes to be communicated.

The marketing literature contains a number of models which authors suggest cover the essential dimensions of brands such as, customer-based brand equity [29-30] and brand personality [31]. These models have different foci. Whereas customer-based brand equity attempts to assess the differential effects of brand knowledge to the marketing of the brand, via sub-constructs such as brand loyalty, brand awareness, perceived quality of the brand and brand associations, brand personality strives to capture the personality traits that consumers see in the brand. Value can be ascribed to a brand based on these interpretations of worth, quality, understanding and identity however, these constructs appear to rely on consumer preferences which are heavily cognitively focused [32-33]. What is required in the case of experiential

service branding is rather a more encompassing assessment of the value of the brand experience. That is, given that experiential service experiences are defined as, “the cognitive, affective and behavioral reactions associated with a specific service event” ([32] p. 51), it can be argued that the brand experience for a customer is derivative of symbolic meanings as to thoughts, feelings and behaviors regarding the brand experience.

Service branding literature offers further support for this premise purporting that functional, technical and emotional aspects of the brand must be measured to fully access the brand interactions [16, 37]. This conceptualization identifies the need for a broadened approach to the measurement of brand value in experiential services, particularly with a focus on the unique inclusion of emotional value [35].

Marketing management typically narrowly construes value as the consumer trade-off between benefits and sacrifices [38-39] or as customer-life-time-value (CLV) from the perspective of the marketing manager [40]. In consumer behavior, however, a more holistic approach is normally taken by conceptualizing value as: “an interactive relativistic preference experience” ([41] p. 9). Summarizing the state of value research as scattered and non-conclusive Sanchez-Fernandez, Iniesta-Bonillo and Holbrook [42] find that no single conceptualization has won universal acceptance. The authors subsequently argue for using a more extensive conceptualization of brand value.

This study applies a different way of measuring value, namely that of the science of value (i.e., axiology). In this latter model of value all conceptual domains within service branding discussed above become visible such as the affective, the cognitive and the behavioral. As such, the axiology model is both a more comprehensive, and a more focused way of modeling brand value. From a consumer perspective, these dimensions reflect consumer reactions derived from brand interactions [32]. From a branding perspective, the brand image needs to reflect all aspects

of the consumer's service experience which includes the attributes, utilitarian properties and symbolic meaning attributed by the consumer [43].

Several reasons exist to support the argument for this multidimensional measure of brand value (encompassing affective, cognitive and behavioral components). First, as is commonly accepted, brands are multidimensional in nature. Hence, an appropriate value approach should be likewise. Second, a parsimonious model of value should tap relevant dimensions in a focused way and avoid redundancy. Third, a desirable characteristic is a generic model that is abstract in nature. Such a scale would display a limited range of items to portray the brand as an entity with the option of translation into different settings and applications. A recent critique of brand personality measurements is that such items (e.g., [31]) may mean different things for different product categories [44]. The latter find that product categories, not only brands, possess personality characteristics. Having a generic model assists in the translation of items from one setting (e.g., brand) to another (e.g., category).

This study utilizes the axiological model of value developed by Robert S. Hartman [17], a Nobel Prize nominee in 1973 for his work on values. This model is multidimensional, covering different levels of values on emotional, practical and logical dimensions. Pair-wise combinations of these three value dimensions defines nine formal value types. These types underlie the multidimensional scale of brand value. Early research on this instrument (the Hartman Value Profile) and its underlying theory has verified the value dimensions [45] and its empirical validity [46]. In management research Mattsson [47] was the first to apply and validate Hartman's value theory in a great number of business contexts. Since then a number of marketing applications have also validated the Hartman approach to values [48-50]. This study adopts the scale used by Barnes and Mattsson [5] which differentiates between the three key dimensions of brand value – emotions (E), practical (P) and logical (L) – based on their degree of richness. Hartman [17]

proposed that the emotion (intrinsic) dimension is deemed to be far richer than the practical (extrinsic) dimension, which in turn, is far richer than the logical (systemic) dimension. Thereby creating a hierarchal ordering of values with emotional perceptions rated the highest and logical perceptions rated the lowest. For a brand to be perceived as offering high brand value all aspects of the brand should be perceived, with an emphasis on the emotional dimensions as a key indicator of high brand value perceptions.

#### *2.4 An emphasis on the emotional dimension of brand values*

Positive feelings and emotions of consumers have been postulated as being derived from consumption experiences in services [32]. This is increasingly the case for experience-centric service contexts whereby emotional connections with customers is touted as an important component of the overall customer experience [3, 51]. The stimulation of sensory information such that the participant feels that the experience is from real-life is one goal of Virtual Worlds [52]. Little doubt exists that Virtual Worlds are becoming increasingly realistic or believable [53], and that the development of sophisticated electronic agents, that is, avatars with artificial intelligence, can invoke an emotional response [54-55]. However, such an emotional response relies on the creation of context and effective stimuli [56-57] such that the design of technology is capable of eliciting different emotional responses.

Many competing psychological theories aim to explain the invocation of emotion from the perception of an event (e.g., see [56-60]). Each of them suggests a link from arousal and emotion to an event and a context, albeit with different sequences and mediators in each model. For example, under the Cannon-Bard theory of emotion, emotion and arousal (physiological responses) occur concurrently [58], while under the Schachter-Singer theory, an event is thought

to elicit arousal however, an emotion is only identified as a result of the reasoning which occurs in relation to the arousal [59]. In relation to marketing, research has highlighted that advertising often serves to invoke an emotional response [61-63]. Thus, while each theory differs, the underlying premise is that a significant enough event must occur within the Virtual World to trigger an emotional response.

Emotional responses to events in Virtual Worlds have been attributed to the believability of events, such that the generated experience for the participant feels real and triggers a positive emotional response [52]. Pertinent believability factors which are seen to elicit emotional responses in the Virtual Worlds literature include levels of autonomy, presentation, immersion and interactivity [52, 64-65]. Autonomy refers to the degree to which users can operate independently, without assistance. Presentation refers to whether the virtual environment appears as real as real-life. Immersion refers to the level of presence that the user feels in the Virtual World, both at a sensory and a perceptual level. Typically the feeling of presence relies on accurate use of semantics to suppress disbelief and enhance believability. For brand representations, brand imagery is important [66]. Finally, and related to the last element that can enhance the believability of events and thus evoke emotive responses [64], interactivity refers to the level of realistic reactive behavior. This area is the most difficult to achieve and relies on providing an experience that is dynamic and responsive.

Despite the saliency of establishing emotional connections with customers in Virtual Worlds, in order to engage them in brand experiences, difficulties in achieving emotional experiences for real-life brands in Second Life have been established [4, 67]. Table 2 examines the four features of brands within the Virtual World that are likely to accentuate emotional responses (emotional value) in Second Life namely, autonomy, presentation, immersion and interactivity. The specific brands chosen for this examination are prominent in real-life and have a sufficient brand offering

for evaluation by respondents in Second Life. The brands chosen are Mercedes (automotive sector), Dell (consumer electronics sector), Armani (apparel sector) and Hublot (luxury sector). Three of these brands are recognized as luxury brands in real-life that rely on a significant component of emotional branding (Mercedes, Armani, and Hublot) [68]; one of the brands, Dell is a more functional brand [68].

In applying the above taxonomy to the evaluation of the emotive potential of each of the selected brands the authors determined the following: autonomy is clearly apparent in contemporary Virtual Worlds and particularly in social orientated worlds such as Second Life [69]. Presentation is an area of rapid development for Virtual World developers and designers. For example, Second Life is improving rapidly in this space, and many examples demonstrate new advances and emulated real-life locations, events and experiences. However, although most of the brands contain realistic elements, they also have other aspects that are distinctly synthetic or badly organized, with limited use of brand imagery. Typically, little exists in the brand locations to attract users and the level of immersion appears low. The most problematic aspect of the brand offerings is that of interactivity. The literature suggests that Virtual Worlds can be very interactive and thus create emotion responses [54-55]. However, none of the brands appear to take advantage of this capability and electronic agents were absent. Few, if any, opportunities exist to interact and much of the brand provision was static. Overall, the framework suggests that the brand experiences in Second Life lend themselves poorly to garnering an emotional response. Table 2 provides an account of the realism features as well as the emotion effects identified for each of the four brands selected for the study. This table was formulated from expert observations of the four brand's presence in Second Life.

[Insert table 2 about here]

In applying these dimensions to a sub-section of brands in Second Life, we can begin to uncover the complexities these brands face in evoking emotive responses. Three of the selected brands within table 2 are luxury brands that one expects to exhibit high emotional value in real-life driving overall brand value (i.e., Mercedes, Armani, and Hublot). However, our observations show that in Second Life there appears limited or inhibited emotional brand value and thus this study posits that emotional value will not be a significant driver of overall brand value. Here we reiterate our past premise based on utilizing Hartman's [17] value axiology, that for a brand to be perceived as offering high brand value all aspects of the brand should be perceived and that high brand value is indicated by an emphasis on the emotional dimension of brand value. Applying this premise to our previous discussion and observations relating to our chosen brands within Second Life, we hypothesize that:

**H<sub>1</sub>: Brand experiences in Second Life contain logical, practical and emotional brand value dimensions.**

However,

**H<sub>2</sub>: The emotional value of brand experience is lower than the logical and practical value dimensions in Second Life**

These hypotheses underpin the examination of axiological brand value in Second Life. The paper will now explain the particular approach of the study.



### 3. Methodology

#### *3.1 Brand value measurement*

This study makes use of an established values model to predict consumer preferences with regard to brand experience values. As discussed above, the study bases its foundation on Hartman's axiology and adopts survey items from Barnes and Mattsson [5]. Hartman's [17, 70] value profile instrument has guidelines as to the formulations of items. The clarifications of Mattsson [47-48] reflect the underlying theoretical combination of the value dimensions for each value type. The model identifies three dimensions of values which reflect a consumer's perceptions, these are identified by Barnes and Mattsson [5] as, emotional (E), practical (P) and logical (L). These three dimensions reflect Hartman's [17] original constructs of intrinsic, extrinsic and systematic, respectively. In addition, an overall item assists in measuring predictive validity to assess the overall value or goodness of the brand in Second Life, for example, "Dell is a good brand." The reason for using the expression "good brand" is the clear relation to the basic definition of value (in the science of value) namely: "the degree of goodness" seen in a thing.

Hartman's model of value types gives rise to nine basic types each formulated as an expression. In practical terms each value type requires translation into a value expression to become operational. When formulating these expressions the second position refers to "the thing" to be evaluated, or in other words, "the object of thought". The second position refers to "how" to evaluate this "thing." Different kinds of words represent either the object of thought (second position in the letter combination e.g., E-E), or how the evaluation is carried out (first position). In formulating a value expression (item) one needs to find appropriate everyday words to express both "the thing" and "how" to evaluate. Most of the time a substantive exemplifies "the thing"

and an adjective signals “how” to evaluate. Here the brand is the target of evaluation.

Consequently, the research instrument needs to portray the brand in all its aspects, namely by using the structural properties of the nine value types which cover the realm of human values. Hence, the instrument captures the E dimension via words that have a strong emotional loading like “pride” or “feeling.” The items in the P dimension represent tangible things or verbs such as “get” or “does.” Expressions in the L dimension capture abstract ideas or words such as “information” and “correct.” Consider an example. The formulation of the value type L-L is “In my opinion ... information about Dell is always correct.” This expression signals a positive logical valuation (i.e., correct) of something logical (i.e., information). Barnes and Mattsson’s [5] survey items are provided in Table 3.

[Insert table 3 about here]

### *3.2 Data collection*

Respondents rate each item on a seven-step bipolar scale from “strongly agree” (7) to “strongly disagree” (1). Neutral is given the score of 4. The survey was delivered via avatar survey bots in Second Life, each programmed and run by GMI, Inc. Each bot is fundamentally an avatar automated to present the questionnaire items in text form and to gather responses in a database. Advertisement for the survey appeared in the bot’s group name and avatar profile. Respondents initiate contact and are given details of the survey and how to begin the questionnaire by sending the instant message “SURVEY”. The survey then begins, with the respondent prompted to answer the questions in numerical format, for example, “What is your gender? 1 = Male, 2 = Female.” To ensure valid responses for each of the four brands (as outlined

in the previous section), each bot was positioned in the actual brand location in Second Life. This decision ensures that respondents have come to experience the Second Life brand location and do not answer the survey blindly.

Every respondent was paid a survey incentive of L\$250 (Linden dollars – the currency in Second Life which was equivalent to approx. 95 U.S. cents) directly from the bot. The research design utilizes a non-conditional incentive, since evidence suggests that such an approach is likely to improve response rates in social science research over conditional incentives such as a prize draw [71]. Further, evidence suggests that incentives do not necessarily bias sample composition or data quality and are more likely to attract harder to reach groups, by providing motivation [72]. The survey ran until more than 200 responses per brand had been collected. Overall, 1039 responses were received for the four brands.

### *3.3 Analytic approach*

The study used two sets of analyses. In the first set, the dimensionality, validity and reliability of the scale from Barnes and Mattsson [5] are thoroughly tested. A standard covariance structural equation modeling approach with AMOS 16.0 was used to test the dimensionality of the scale and confirm the second order structure. This approach is limited to the use of reflective indicators and requires a larger sample size but enables a more confirmatory factor-analytic test of the axiological model using standard goodness-of-fit metrics [73].

The study also used a variance maximization approach which, while not a factor analytic technique in the pure sense, is able to handle formative relations, has the advantage of being effective on small samples and does not require distributional assumptions of the sample [74-75]. PLS path modeling is an ideal technique for more exploratory structural equation analysis, albeit

more limited in goodness-of-fit tests. PLS was used with the formative indicators to model the value pattern for each brand examined. The two models tested appear in figure 1 (a) and (b).

[Insert Fig. 1 about here]

The study includes an evaluation of the pattern of perceived values for each brand. When respondents complete the survey one cannot expect them to fully cover the complete set of (nine) value types when relating to a certain brand. Instead one should expect them to be biased and to focus on a few of them. In this study the aim is to investigate value patterns of brands, that is the way in which value dimensions are perceived for each brand, and not only individual value types. Therefore the study requires a way to statistically discriminate those value types which are in focus from those other value types of minor interest. The argument is as follows: the Hartman value realm is a theoretical scheme embedded in human perception and cognition. The study here postulates, nevertheless, that respondents are able to differentiate between the three main value dimensions – E, P and L. Hence, a group of respondents who clearly link a value type of a certain perspective, for example E-X, with the corresponding latent construct of the E-dimension, is defined as seeing that value type *inherent in the brand*. Inherent means that the brand *as an entity is assigned this value type*. In this study this outcome is achieved using formative indicators in Smart-PLS 2.0 [76], as shown in figure 1(b). In order to test the validity and reliability of the scale and its dimensions, PLS path modeling was applied with reflective indicators, using the model shown in figure 1(a).

#### 4. Results

In all, the study includes 1039 responses across the four brands. Some 38% of the sample is male and 62% female, with a median age of 25 to 34 years and a median weekly usage of 10 to 30 hours. Overall, Armani rated as the best brand in terms of the overall mean of goodness ( $M=5.6$ ), followed by Dell ( $M=5.4$ ), Mercedes ( $M=5.3$ ) and Hublot ( $M=4.9$ ).

#### *4.1 Assessing the dimensionality, validity and reliability of the value model*

The study assessed the dimensionality of the scale via a large sample and a confirmatory covariance structural equation modeling approach. To this end, the study tested models 1 to 3 in Figure 2. A power analysis in G\*Power 3.0 [77] suggested that the sample was large enough for even small population effects ( $\alpha = 0.05$ ;  $\beta = 0.2$ ;  $w \geq 0.112$ ) in the structural model. First, the oblique model was tested. The fit of the model was very good (RMSEA = 0.07, CFI = 0.981 and AGFI = 0.944). Second, the three-dimensional second-order model was tested. Since the models were equivalent, the fit indices are the same, and so the analysis applied a method to decide between the two models. This study used the discriminant validity rule of Fornell and Larcker [78]; if the smallest AVE extracted by a first order concept is lower than the larger shared variance among the three concepts, this finding substantiates the rejection of the three-dimensional oblique model in favor of the second-order model. The results of testing appear in table 4. Clearly the shared variances were greater than the AVEs and imply the clear rejection of the oblique solution in favor of the second-order solution. Next, the study tested model 2 against a one-dimensional solution. The fit of the one-dimensional solution was worse than the two previous ones as shown by all fit statistics in figure 2. This finding confirms that the three-dimensional second-order axiological model was the best fit on the data and therefore offers support for H1.

[Insert fig. 2 about here]

The study tested the predictive validity of the axiological scale via the single-item approach [79], utilizing the single measure of overall value or goodness;  $r$  is the usual statistic for reporting a validity coefficient in the psychometric test literature for predictive validity (e.g., [80]). Table 5 shows the results of the tests of predictive validity for each of the brands and overall. As can be seen, the levels of  $r$  and  $R^2$  are substantial and each is significant at the 0.1% level, demonstrating that the scale had good predictive validity.

[Insert tables 4 and 5 about here]

The scale demonstrated strong reliability and convergent validity of constructs for the pooled sample (AVE: 0.630-0.642; Cronbach's  $\alpha$ : 0.833-0.844; Jöreskog  $\rho$ : 0.836-0.843), but that these are clearly part of a second-order model of value. Further, the PLS model suggested in figure 1(a) was again tested on each of the four new brand samples, as shown in table 6. A power analysis in G\*Power 3.0 showed that the samples (Mercedes,  $n=344$ ; Armani,  $n=231$ ; Dell,  $n=216$ ; Hublot,  $n=248$ ) were sufficient for explaining even small to moderate population effects (Mercedes,  $f^2 \geq 0.032$ ; Armani,  $f^2 \geq 0.048$ ; Dell,  $f^2 \geq 0.051$ ; Hublot,  $f^2 \geq 0.045$ ;  $\alpha = 0.05$ ;  $\beta = 0.2$ ). All items loaded very significantly on their appropriate dimensions ( $p < .001$ ). Again validity (AVE) and reliability was strong (AVE  $> 0.5$  and  $\rho > 0.8$ ), as per Fornell and Larcker [78] and Straub and Carlson [81], and  $R^2$  was substantial across the four brands, ranging from 0.454 to 0.710, demonstrating strong explanatory power in the axiological model.

[Insert table 6 about here]

#### 4.2 Analysis of value patterns

The analyses included PLS models with formative indicators to estimate how the respondents perceived the value pattern for each brand. This analysis set out to discriminate between those values seen in the object (i.e., significant as to the impact of goodness), and others not seen, but available anyway. For a value item to be significant in the assessment of value for a specific brand, the  $t$ -values should be significant for both the item and the path to the overall item (i.e., goodness). Otherwise, the value has no impact on goodness (overall). The larger the weighting, the more important and clear a value is to respondents.

Table 7 summarizes the results of PLS path modeling (Centroid Weighting Scheme). The overall levels of  $R^2$  were considerable, ranging from 0.475 to 0.731. Examining the value pattern for the brands, the following findings were notable:

- Mercedes showed strong drivers from the logical dimension ( $p < .001$ ), specifically items L-P ( $p < .01$ ) and L-E ( $p < .05$ ), indicating practicality (as measured by “symbol of quality”) and uniqueness. L-L, which refers to conformance to specifications (i.e., accurate information), was almost significant ( $p < .10$ ). All other items were significant ( $p < .05$ ) or almost significant ( $p < .10$ ), but the analysis discarded these due to non-significant paths in the model.
- Armani demonstrated an influence from emotional and logical dimensions (both  $p < .05$ ). Again, L-P ( $p < .001$ ) and L-E ( $p < .01$ ) were important, referring to the practicality (i.e., quality) and uniqueness of the brand, along with E-E and E-L (both  $p < .05$ ), demonstrating

an infusion of emotional content in the brand. The analysis discarded the items for the practical dimension due to a non-significant path.

- Dell appeared to rely on the logical dimension for brand value, focusing exclusively on practicality or reliability via L-P. Item L-E was almost significant, as was the path for the practical dimension, where items P-P and P-L were significant.
- Hublot was influenced by practical and logical dimensions (both  $p < .05$ ), particularly P-P ( $p < .001$ ), L-E and P-L ( $p < .01$ ), and L-P ( $p < .05$ ), demonstrating practical and logical valuations of worth, uniqueness and quality.

[Insert table 7 about here]

Table 8 summarizes the findings across the four brands. The use of PLS with formative indicators clearly differentiates the key values in the brands. They conform across types and the most prominent drivers are Logical and Practical dimensions. The Emotional dimension is all but absent, and displays significance only for one brand, which is by far the most luxury-oriented and emotional of the brands – the fashion-house Armani [70]. Hence, these findings offer support for H2. The most prevalent indicator, apparent in all brand evaluations, is L-P, which refers to logical evaluation of practical value or reliability and is measured in the instrument by “...symbol of quality.” This item is eighth in the axiological measuring rod and demonstrates a lower level of overall brand value. Also important and surfacing in three brands is L-E. Overall the axiological value pattern clearly focuses on the lower half of the axiological scale which demonstrates the presence of low brand value for these brands in Second Life.



[Insert table 8 about here]

## 5. Discussion and conclusions

### *5.1 Experiential brand experiences in the Virtual World*

The results of the analysis support our over-riding hypothesis that the brand presences established in Second Life generally provide only low-end experiential value – that is, value at the bottom of the axiological scale – and that richer value types at the high-end are all but absent. The results confirm Hypothesis 2 in all cases but one: emotional value is not a significant determinant of overall brand experience value in Second Life. This finding bodes particularly badly for the brands investigated, especially since the three deluxe brands are recognized as having high level emotional branding strategies.

The emotional experience of brands that emerge in the study are somewhat indicative of the virtual servicescape offered in Virtual Worlds. Emotional response occurs with significant interaction and engagement from the customer and that is something that the Second Life locations fail to provide. The emotional real-life brand and the images displayed around the up-market, recreated Armani store do help to create a feeling of emotional brand value, albeit relatively weak, but the static nature of the location and the lack of interactivity draw doubt over the sustainability of this value (note: the Armani location in Second Life has since closed). No mechanisms exist to increase stickiness at the brand location; no interactive displays occupy the customer at the site and indeed, little reason occurs for customers visiting the site to return. Overall, the immersed users of the Second Life experience only typically see practical and logical dimensions. They stand out in comparison to the emotional dimension.

The implications are that underperforming Virtual World brand experiences need to considerably improve their efforts. To build emotional brand value – which appears at the top of the axiological instrument but that current brand offerings poorly represent – firms need to advance in terms of the inclusion of emotional content (i.e., carefully chosen brand images, realistic 3D representations, and other multimedia) and interactive content and mechanisms that drive a positive emotional experience that, in turn, creates very high brand value (e.g., the Gossip Girl TV series at the Warner Bros. location in Second Life). Static experiences that developers do not periodically update and that do not create a compelling reason for repeat visits or word-of-mouth are unlikely to create more than low-end, short-lived value.

This study also contributes to the understanding of the recent failures of real-life brands in Second Life, particularly in terms of the inability of early movers to the Virtual World in eliciting emotional responses from consumers. This is based on the fact that 3 of the 4 brands analyzed within this study have since removed their brand experience from Second Life. This research is therefore unique in that it empirically examines prominent real-life brands in Second Life in the short time period before their subsequent demise. While causal inferences between brand value perceptions and the removal of brand presence from Second Life cannot be directly supported through these findings, we note that the low emotional value displayed in these brands may have resulted in negative consumer reactions such as decreased customer satisfaction and decreased perceptions of service quality, which are linked to unsatisfactory consumer experiences and poor consumer engagement [1, 82].

Customer satisfaction with virtual service brand experience is derived from brand-related promises of quality as well as the subjective experiences, thoughts, feelings, sensations that occur during the encounter [83]. Hence, it is clear that this research offers empirical support to previous service research in that it denotes the significance of engaging customers across all aspects of

engagement – emotional, physical and intellectual [3, 83-85].

The research also contributes to the debate surrounding existing measures of customer-perceived brand experience value and illustrates the successful application of Hartman's axiological theory in the context of brands in Virtual Worlds. The evidence supports the conclusion that the scale is valid and reliable for measuring brand value in Virtual Worlds. The results demonstrate strong validity and reliability for the selection of a three-dimensional second-order model with factors for emotional, practical, and logical value. Previous research on the application of Hartman's axiological model in marketing supports this finding, which generally applies the model in terms of emotional, practical, and logical dimensions [51, 86-87].

While we recognise the strengths of our results, it is worth noting some research limitations. Data collection via avatar survey bots could be considered imperfect to the extent that the actual population is indefinite and the sampling approach is one of self-selection. However, we have attempted to diminish bias in several ways. First, we have collected data at brand locations – which enforces the requirement for familiarity with the brand location in Second Life. Second, we implemented measures to reduce the incidence of 'alt' account abuse in surveys [5]. However, we had no control over the demographic or other characteristics of the respondents. Future research should attempt to further develop avatar survey bots and alternatives that allow for more sophisticated sampling techniques, including quota, stratified and cluster sampling.

Further, the sample of brands chosen for inclusions in the study also offers some limitations. Although the varied brands demonstrate potential differences in brand value experience patterns, they are only a subset of the brands currently represented in Second Life. The study has explicitly focused on real-life brands that have extended to Second Life. Virtual-only or v-brands represent by far the largest sector of the economy in Second Life and deserve greater attention. Further research should aim to extend the investigation to further brand

categories and alternative brands positioned within existing categories, both extended and v-brands, in order to broaden available knowledge of Virtual World brands.

As a research area, the service design and delivery aspects of Virtual Worlds as service platforms are extremely new and embryonic. There are a very large number of research questions that are worthy of exploration in the future. Some relevant issues related directly to brand experiences which offer valuable insights for researchers and practitioners alike are as follows. Firstly, how do brand experiences develop in Virtual Worlds? How does this differ between real-life brands and brands that exist in Virtual Worlds? These questions also bring rise to further exploration of the Virtual World to determine what aspects of this service platform contribute towards shaping brand experiences for customers. Furthermore, how can these aspects be best managed to achieve successful branding? While this study focused upon brands which had both a real-life and virtual life presence, it would be of merit to explore the similarities and differences between facets of the brand experience for brands which have a Virtual World and real-life presence and those that are offered purely as a virtual brand (v-brand). A final area of direct interest to the current study is to further explore consumer reactions aligned with their brand experiences such as customer satisfaction, customer loyalty, service quality and how can managers enhance their service experience design and delivery to enhance these outcomes.

In conclusion, Virtual Worlds offer a service platform for brand experiences that, while attempting to emulate some aspects of real-life experiences, appears quite dissimilar in many ways. The complexity of the service platform demands significant additional consideration from researchers and marketers alike to enable measurable brand experience value creation for Virtual World consumers, especially with respect to emotional value, which rates at the highest end of the brand value scale in terms of Hartman's axiological theory. Moving an existing real-life brand into the three-dimensional altered reality of the Virtual World is far more complex than many

early movers anticipated, as the closure of Second Life operations of well-known brands such as Sears, Adidas, Reebok, AOL, Mercedes, American Apparel and Armani testify. Considerable further effort and understanding is required in redesigning existing and developing new brand experience models to fit the immersive, highly realistic, individualized and decidedly interactive nature of the service platform, its synthetic reality and that of its inhabitants. Obvious parallels come-to-mind with the early challenges of marketing on the Web in the 1990s and the “build it and they will come” mentality that became commonplace. Similarly, succeeding in Second Life will clearly require much more than a “flag in the ground.”

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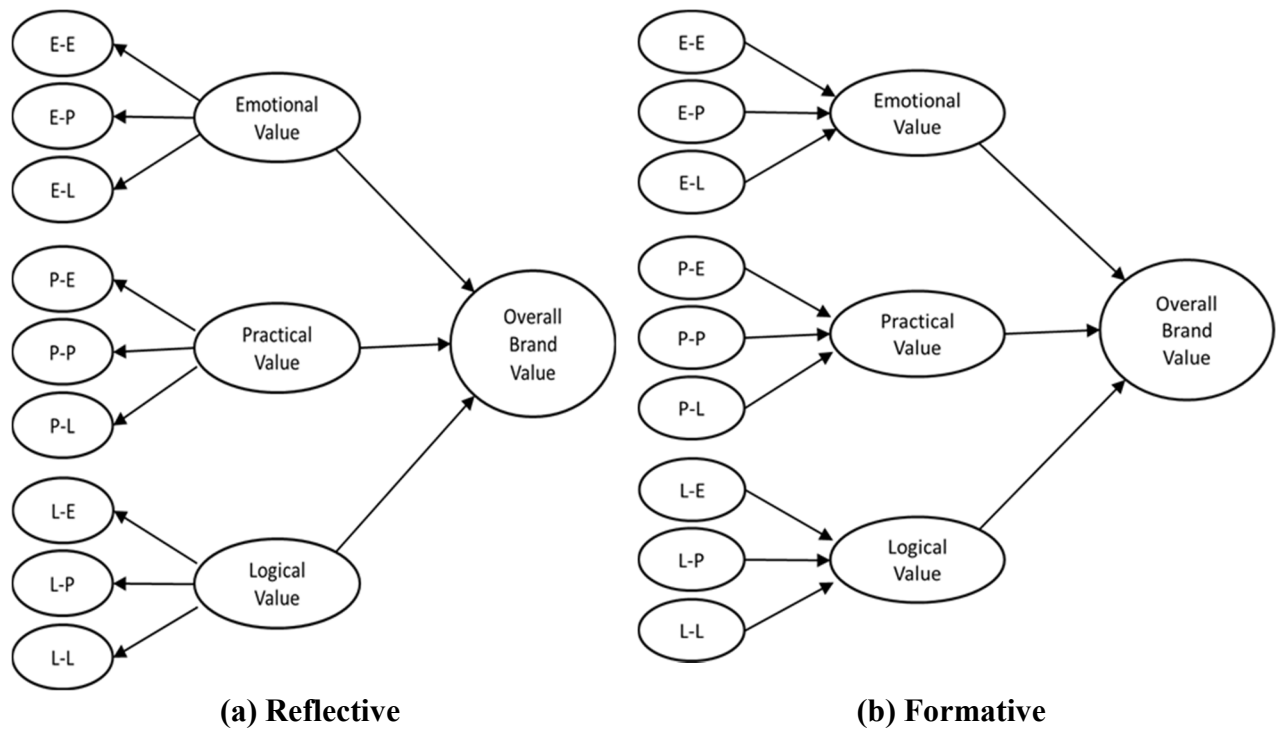
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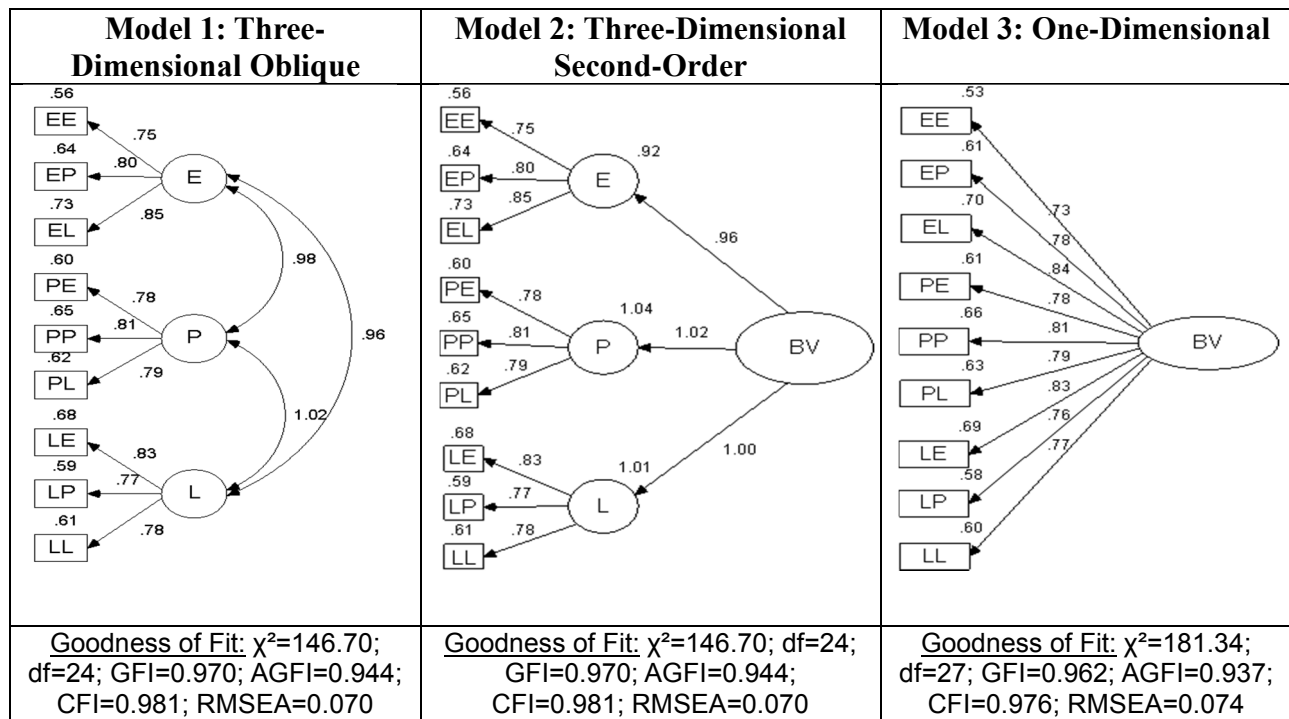
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**Fig. 1**

Axiological research models



**Fig. 2**

Confirmatory factor analysis on pooled sample (n=1039)

**Table 1**

Cross-section of the largest Virtual Worlds currently in the market

<b>Virtual Worlds</b>	<b>Type</b>	<b>Age of Population</b>	<b>No. Registered Users*</b>	<b>Launched</b>
<i>Club Penguin</i>	Casual Gaming	Age 10-13	220 million	2005
<i>Dofus</i>	Questing & Adventure / Fantasy	Age 20-25	60 million	2004
<i>Gaia</i>	Questing & Adventure / Fantasy	Age 15-20	50 million	2003
<i>GoSupermodel</i>	Fashion / Lifestyle	Age 13-15	30 million	2006
<i>Habbo</i>	Socializing / Open World	Age 15-20	280 million	2000
<i>IMVU</i>	Content Creation	Age 20-25	100 million	2004
<i>Maplestory</i>	Questing & Adventure / Fantasy	Age 15-20	120 million	2003
<i>Meez</i>	Socializing / Open World	Age 15-20	30 million	
<i>Minecraft</i>	Content Creation	Age 13-15	42 million	2010
<i>Moshi Monsters</i>	Casual Gaming	Age 10-13	77 million	2009
<i>Neopets</i>	Casual Gaming	Age 8-10	77 million	2008
<i>Poptropica</i>	Casual Gaming	Age 8-10	265 million	2008
<i>Robbox</i>	Content Creation	Age 13-15	30 million	2005
<i>Second Life</i>	Fashion / Lifestyle	Age 30+	31 million	2003
<i>Stardoll</i>	Fashion / Lifestyle	Age 13-15	232 million	2004
<i>Weeworld</i>	Socializing / Open World	Age 15-20	70 million	2000
<i>Wizard 101</i>	Questing & Adventure / Fantasy	Age 10-13	32 million	2009

\* Figures from Q4, 2012 Sources: [89, 90]



**Table 2**

Features of realism and the effect on emotion for the four brands in Second Life

	<b>Mercedes</b>	<b>Armani</b>	<b>Dell</b>	<b>Hublot</b>
<b><i>Autonomy</i></b>	Considerable autonomy.	Considerable autonomy.	Considerable autonomy.	Considerable autonomy.
<b><i>Presentation</i></b>	Car showroom and test track. The presentation is bland and unrealistic. Cars are 'blocky' and the landscape is bare.	Very realistic representation of the Via Manzoni store in Milan. The shelves of the store are quite bare and range of clothing is very limited.	Harbor village on Dell's islands is quite realistic. Other aspects are bland and simplistic.	Underwater glass tunnel with swimming shark realistic. Chaotic mix of different and unrelated features does not create a realistic setting.
<b><i>Immersion</i></b>	General representation is very synthetic. Logos visible. Poor brand imagery. Location had reasonable traffic.	Provides many features from the original store and real-life brand imagery. Location feels empty and has poor traffic. No real reason for users to return.	Logos are visible. Brand imagery is poor and aspects appear synthetic. Location benefits from traffic through its conference facilities, but is generally low.	General representation does not fit with the brand. Logos visible. Brand imagery focused on information rather than invoking an emotional response. Location feels empty with low traffic.
<b><i>Interactivity</i></b>	Enables buying and driving a virtual car. Driving experience is poor and lacks responsiveness (inferior to modern driving games). No electronic agents to interact with.	No interactivity is provided. Products cannot be handled or bought. Location is static and has no electronic agents.	Poor level of interactivity. Introduction area for new users and links to web sites. Focus on providing information. No electronic agents.	Few interactive features - most of them aimed at building traffic to improve search rankings. Products cannot be bought and handled. No electronic agents.
<b><i>Emotional features in real-life</i></b>	High. Marketed as a brand with emotional features	High. Marketed as a brand with emotional features	Low. Not an emotional brand.	High. Marketed as a brand with emotional features
<b><i>Emotional features in Second Life</i></b>	Very low. Brand has few features that enhance emotion.	Moderate. Brand representation has some features enhancing emotion but lacks important interactivity	Low. Brand has some features to enhance emotion but is not an emotional brand.	Very low. Brand has few features that enhance emotion.

**Table 3**

Axiological measurement instrument for brand value (Dell example)

<b>Item no.</b>	<b>Value type</b>	<b>Item</b>	<b>Explanation</b>
1	E-E	I feel great pride identifying with Dell.	<i>Emotional valuation of something Emotional.</i>
2	E-P	What Dell delivers feels right for me.	<i>Emotional evaluation of something Practical.</i>
3	E-L	I feel I am able to trust Dell completely.	<i>Emotional valuation of something Logical.</i>
4	P-E	Dell does me good.	<i>Practical valuation of something Emotional.</i>
5	P-P	Dell is a satisfying buy.	<i>Practical valuation of something Practical.</i>
6	P-L	What I get from Dell is worth the cost.	<i>Practical valuation of something Logical.</i>
7	L-E	The uniqueness of Dell stands out.	<i>Logical valuation of something Emotional.</i>
8	L-P	Dell is a symbol of quality.	<i>Logical valuation of something Practical.</i>
9	L-L	Information about Dell is always correct.	<i>Logical evaluation of something Logical.</i>

**Table 4**

Examining reliability and discriminant validity of models 1 and 2

Sub-concepts	Cronbach's $\alpha$	Jöreskog $\rho$	AVE	Shared variance	
				Emotional	Logical
Emotional	0.844	0.843	0.642		
Practical	0.834	0.836	0.630	96%	104%
Logical	0.833	0.836	0.630	92%	

**Table 5**

Validity coefficients (r) and accounted-for variance (R-square) for full axiological scale as a predictor of single-item overall brand value

	<b>Pooled sample</b>	<b>Mercedes</b>	<b>Armani</b>	<b>Dell</b>	<b>Hublot</b>
r	0.765	0.774	0.656	0.822	0.791
R <sup>2</sup>	0.585	0.598	0.431	0.676	0.626
n	1039	344	231	216	248

Note: all r's are significant at  $p < .001$

**Table 6**

Results of PLS modeling with reflective indicators

	Mercedes (loadings)			Armani (loadings)			Dell (loadings)			Hublot (loadings)		
	E	P	L	E	P	L	E	P	L	E	P	L
<b>E-E</b>	0.879***			0.863***			0.861***			0.813*		
<b>E-P</b>	0.904***			0.828***			0.905***			0.845*		
<b>E-L</b>	0.892***			0.873***			0.905***			0.836*		
<b>P-E</b>		0.873***			0.817***			0.887***			0.795***	
<b>P-P</b>		0.889***			0.844***			0.900***			0.823***	
<b>P-L</b>		0.892***			0.837***			0.915***			0.820***	
<b>L-E</b>			0.875***			0.825***			0.913***			0.903***
<b>L-P</b>			0.886***			0.819***			0.916***			0.830***
<b>L-L</b>			0.878***			0.778***			0.895***			0.832***
<b>E-&gt;Overall</b>			-0.082			0.400			0.056			0.211
<b>P-&gt;Overall</b>			0.116			-0.011			0.169			0.294†
<b>L-&gt;Overall</b>			0.784***			0.322			0.639***			0.362*
<b>AVE</b>	0.795	0.783	0.773	0.731	0.693	0.652	0.793	0.811	0.824	0.691	0.660	0.732
<b>pc</b>	0.921	0.915	0.911	0.891	0.871	0.850	0.920	0.928	0.934	0.870	0.854	0.891
<b>R<sup>2</sup></b>			0.673			0.454			0.710			0.641

Note: significance levels denoted by † (10%), \* (5%), \*\* (1%) and \*\*\* (0.1%).

**Table 7**

Results of PLS modeling with formative indicators

	Mercedes (weights)			Armani (weights)			Dell (weights)			Hublot (weights)		
	E	P	L	E	P	L	E	P	L	E	P	L
<b>E-E</b>	0.350*			0.495*			-0.033			0.458*		
<b>E-P</b>	0.345†			0.214			0.479**			0.253		
<b>E-L</b>	0.426†			0.446*			0.625***			0.489*		
<b>P-E</b>		0.365*			0.255			0.022			-0.027	
<b>P-P</b>		0.346†			0.511*			0.580***			0.665***	
<b>P-L</b>		0.419*			0.426†			0.478**			0.531**	
<b>L-E</b>			0.305*			0.535**			0.322†			0.547**
<b>L-P</b>			0.589***			0.630***			0.581***			0.422*
<b>L-L</b>			0.230†			0.013			0.185			0.178
<b>E-&gt;Overall</b>			-0.060			0.363*			0.061			0.181
<b>P-&gt;Overall</b>			0.113			0.004			0.247†			0.396*
<b>L-&gt;Overall</b>			0.777***			0.366*			0.576***			0.320*
<b>R<sup>2</sup></b>			0.685			0.475			0.731			0.678

Note: significance levels denoted by † (10%), \* (5%), \*\* (1%) and \*\*\* (0.1%).

**Table 8**

Summary of formative brand value patterns

<b>Item</b>	<b>Mercedes</b>	<b>Armani</b>	<b>Dell</b>	<b>Hublot</b>
<i>E-E</i>		*		
<i>E-P</i>				
<i>E-L</i>		*		
<i>P-E</i>				
<i>P-P</i>				***
<i>P-L</i>				**
<i>L-E</i>	*	**		**
<i>L-P</i>	***	***	***	*
<i>L-L</i>				
<i>Hypothesis 1</i>	accepted	rejected	accepted	accepted

Note: significance levels denoted by \* (5%), \*\* (1%) and \*\*\* (0.1%).